

## ABSTRACT

A photo-catalyst containing titanium fluoride nitride comprising,  $Ti(IV)O_aN_bF_c$  or a compound represented by  $MeTi(IV)O_aN_bF_c$  prepared by doping at least one metal Me selected from the group consisting of alkalis or alkali metals on  $Ti(IV)O_aN_bF_c$ . (wherein,  $b$  is 0.1 to 1,  $c$  is 0.1 to 1 and  $a$  is a value to maintain  $Ti(IV)$  and is decided in relation to  $b$  and  $c$ ). The photo-catalyst containing titanium fluoride nitride is especially characterized by loading at least one promoter selected from the group consisting of Pt, Ni and Pd.